



## Testimony

Before the Subcommittee on Tactical  
Air and Land Forces, Committee on  
Armed Services, House of  
Representatives

For Release on Delivery  
Expected at 12:30 p.m. EDT  
Wednesday, March 26, 2014

# F-35 JOINT STRIKE FIGHTER

## Slower Than Expected Progress in Software Testing May Limit Initial Warfighting Capabilities

Statement of Michael J. Sullivan, Director  
Acquisition and Sourcing Management

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was initiated in early 2010, when the program's unit cost estimates exceeded critical thresholds established by statute—a condition known as a Nunn-McCurdy breach. DOD subsequently certified to the Congress in June 2010 that the program was essential to national security and needed to continue.<sup>3</sup> DOD then began efforts to significantly restructure the program and establish a new acquisition program baseline. These restructuring efforts continued through 2011 and into 2012, during which the department increased the program's cost estimates, extended its testing and delivery schedules, and reduced near-term aircraft procurement quantities by deferring the procurement of 410 aircraft into the future. The new F-35 acquisition program baseline was finalized in March 2012, and since that time, costs have remained relatively stable.

At the time the new F-35 acquisition program baseline was finalized, it did not identify new initial operational capability (IOC) dates for the three military services.<sup>4</sup> The following year DOD issued a memorandum noting that Marine Corps and Air Force were planning to field initial operational capabilities in July 2015 and August 2016, respectively, and that the Navy planned to field its initial capability in August 2018. The memorandum emphasized that the Marine Corps and Air Force initial operational capabilities would be achieved with aircraft that possess initial combat capabilities, and noted that those aircraft would need additional lethality and survivability enhancements to meet the full spectrum of warfighter requirements in the future. These new parameters represented a delay of 5 to 6 years from the program's initial 2001 baseline and a reduction in the capabilities expected at IOC.

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<sup>3</sup> Section 2433 of title 10 of the United States Code, commonly referred to as Nunn-McCurdy, requires DOD to notify Congress whenever a major defense acquisition program's unit cost experiences cost growth that exceeds certain thresholds. This is commonly referred to as a Nunn-McCurdy breach. Significant breaches occur when the program acquisition unit cost or procurement unit cost increases by at least 15 percent over the current baseline estimate or at least 30 percent over the original estimate. For critical breaches, when these unit costs increase at least 25 percent over the current baseline estimate or at least 50 percent over the original, DOD is required to take additional steps, including conducting an in-depth review of the program. Programs with critical breaches must be terminated unless the Secretary of Defense certifies to certain facts related to the program and takes other actions, including restructuring the program. 10 U.S.C. § 2433a.

<sup>4</sup> Initial operational capability is obtained when organizations or units have received a specified number of systems and have the ability to employ and maintain those systems.



military services. F-35 developmental flight testing comprises two key areas: mission systems and flight sciences. Mission systems testing verifies that the software-intensive systems that provide critical warfighting capabilities function properly and meet requirements, while flight sciences testing verifies the aircraft's basic flying capabilities. Challenges in development and testing of mission systems software continued through 2013, due largely to delays in software delivery, limited capability in the software when delivered, and the need to fix problems and retest multiple software versions. The Director of Operational Test and Evaluation predicts delivery of warfighting capabilities could be delayed by as much as 13 months. Delays of this magnitude will likely limit the warfighting capabilities that are delivered to support the military services' initial operational capabilities—the first of which is scheduled for July 2015—and at this time it is not clear what those specific capabilities will be because testing is still ongoing. In addition, delays could increase the already significant concurrency between testing and aircraft procurement and result in additional cost growth. Without a clear understanding of the specific capabilities that will initially be delivered, Congress and the military services may not be able to make fully informed resource allocation decisions.<sup>7</sup> Flight sciences testing has seen better progress, as the F-35 program has been able to accomplish nearly all of its planned test flights and test points. Testing of the aircraft's operational capabilities in a realistic threat environment is scheduled to begin in 2015. The program has continued to make progress in addressing some key technical risks.

To execute the program as planned, the DOD will have to increase funds steeply over the next 5 years and sustain an average of \$12.6 billion per year through 2037; for several years, funding requirements will peak at around \$15 billion (see figure 1).

<sup>7</sup> We made a recommendation in our March 2014 report to address this issue which is discussed later in this statement.

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has improved. For example, the prime contractor has seen reductions in overall labor hours needed to manufacture the aircraft, as expected. In 2013, the contractor delivered 35 aircraft to the government, 5 more than it delivered in 2012 and 26 more than it delivered in 2011. The prime contractor has put in place a supplier management system to oversee key supplier performance.

In conclusion, DOD has made a number of difficult decisions to put the F-35 on a more sound footing. More such decisions may lie ahead. For example, if software testing continues to be delayed, if funding falls short of expectations, or if unit cost targets cannot be met, DOD may have to make decisions about whether to proceed with production as planned with less capable aircraft or to alter the production rate. Also, if reliability falls short of goals, DOD may have to make decisions about other ways to reduce sustainment costs, such as reduced flying hours. Eventually, DOD will be faced with making contingency plans for these and other issues. At this point, we believe the most pressing issue is the effect software testing delays are likely to have on the capabilities of the initial operational aircraft that each military service will receive. In order to make informed decisions about weapon system investments and future force structure, it is important that Congress and the services have a clear understanding of the capabilities that the initial operational F-35 aircraft will possess. Thus, in our March 2014 report we recommended that DOD assess the specific capabilities that realistically can be delivered and those that will not likely be delivered to each of the military services by their established initial operational capability dates, and share the results of that assessment with the Congress and military services as soon as possible but no later than July 2015. DOD agreed with our recommendation and noted that it would conduct an assessment and share the results with Congress and military services in a timely manner.

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Chairman Turner, Ranking Member Sanchez, and members of the House Armed Services Committee, Subcommittee on Tactical Air and Land Forces this completes my prepared statement. I would be pleased to respond to any questions you may have. We look forward to continuing to work with the Congress as we continue to monitor and report on the progress of the F-35 program.



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# Related GAO Products

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*F-35 Joint Strike Fighter: Problems Completing Software Testing May Hinder Delivery of Expected Warfighting Capabilities.* GAO-14-322. Washington, D.C.: March 24, 2014.

*F-35 Joint Strike Fighter: Current Outlook Is Improved, but Long-Term Affordability Is a Major Concern.* GAO-13-309. Washington, D.C.: March 11, 2013.

*Joint Strike Fighter: DOD Actions Needed to Further Enhance Restructuring and Address Affordability Risks.* GAO-12-437. Washington, D.C.: June 14, 2012.

*Joint Strike Fighter: Restructuring Added Resources and Reduced Risk, but Concurrency Is Still a Major Concern.* GAO-12-525T. Washington, D.C.: March 20, 2012.

*Joint Strike Fighter: Restructuring Places Program on Firmer Footing, but Progress Is Still Lagging.* GAO-11-677T. Washington, D.C.: May 19, 2011.

*Joint Strike Fighter: Restructuring Places Program on Firmer Footing, but Progress Still Lags.* GAO-11-325. Washington, D.C.: April 7, 2011.

*Joint Strike Fighter: Restructuring Should Improve Outcomes, but Progress Is Still Lagging Overall.* GAO-11-450T. Washington, D.C.: March 15, 2011.

*Joint Strike Fighter: Accelerating Procurement before Completing Development Increases the Government's Financial Risk.* GAO-09-303. Washington D.C.: March 12, 2009.

*Joint Strike Fighter: Recent Decisions by DOD Add to Program Risks.* GAO-08-388. Washington, D.C.: March 11, 2008.

*Joint Strike Fighter: Progress Made and Challenges Remain.* GAO-07-360. Washington, D.C.: March 15, 2007.

*Joint Strike Fighter: DOD Plans to Enter Production before Testing Demonstrates Acceptable Performance.* GAO-06-356. Washington, D.C.: March 15, 2006.

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